

COMMONWEALTH OF VIRGINIA
Department of Environmental Quality
South Central Regional Office

STATEMENT OF LEGAL AND FACTUAL BASIS

Kyanite Mining Company
Located off U.S. Hwy. 15 four miles south of U.S. Hwy. 60 in Buckingham County
Permit No. SCRO30677

Title V of the 1990 Clean Air Act Amendments required each state to develop a permit program to ensure that certain facilities have federal Air Pollution Operating Permits, called Title V Operating Permits. As required by 40 CFR Part 70 and 9 VAC 5 Chapter 80, Kyanite Mining Company has applied for a Title V Operating Permit for its Buckingham County facility. The Department has reviewed the application and has prepared a draft Title V Operating Permit.

Engineer/Permit Contact: _____ Date: May 20, 2008

Air Permit Manager: _____ Date: May 20, 2008

Regional Director: _____ Date: May 20, 2008

FACILITY INFORMATION

Permittee

Kyanite Mining Company
P. O. Box 486
Dillwyn, Virginia 23936

Facility

Kyanite Mining Company
located off U.S. Hwy. 15, south of U.S. Hwy. 60 in Buckingham County

County-Plant Identification Number: 51- 029-00016

SOURCE DESCRIPTION

NAICS Code: 212325 - Clay and Ceramic and Refractory Minerals Mining

Kyanite Mining Company (KMC) mines kyanite ore on-site, crushes the kyanite ore, concentrates the kyanite mineral using wet extraction processes, and dries the concentrated kyanite, and eliminates remaining impurities through a thermal oxidization/reduction process. Some of the refined kyanite is calcined into mullite, a similar material with different physical properties. Both kyanite and mullite are used for high temperature refractory materials and high voltage electrical insulators. The kyanite mining and kyanite/mullite processing facility includes the following operations: the Willis Mountain kyanite plant, which was constructed in 1957; the East Ridge kyanite plant, which was built in 1974; and the Gieseke kyanite/mullite plant, which commenced construction in 1985, but the kiln has not been completed. On October 18, 2002, a State Operating Permit (SOP) was issued to KMC that limited annual emissions from this facility to below Prevention of Significant Deterioration (PSD) permitting levels. The State Operating Permit (SOP) was amended on April 7, 2003; September 13, 2004; June 20, 2005; July 29, 2005; November 29, 2005; May 22, 2006; March 19, 2007, and June 4, 2007. The Title V permit was last amended December 18, 2006 to include the SOP amendments of June 20, 2005; November 29, 2005; and May 22, 2006, as well as a permit exemption of May 18, 2005.

The facility is a Title V major source of PM, PM-10, SO₂, NO_x, and CO. This source is located in an attainment area for all pollutants, and is a PSD synthetic minor source. The facility is permitted under a State Operating Permit originally issued on October 18, 2002, and most recently amended on June 4, 2007. There have been no permit actions for the facility since the June 4, 2007 SOP amendment and the June 19, 2007 Title V modification.

COMPLIANCE STATUS

A full compliance evaluation of this facility, including a site visit, has been conducted. In addition, all reports and other data required by permit conditions or regulations, which are submitted to DEQ, are evaluated for compliance. The permittee is required by the Title V permit

to conduct certain stack tests at a frequency not to exceed five years. The five year time frame has passed, the tests have not been conducted, and a Notice of Violation letter has been issued. A compliance plan is being developed for the completion of the required testing. Based on these compliance evaluations, with the exception of the stack test requirements,, the facility has not been found to be in violation of any other state or federal applicable requirements at this time.

EMISSION UNIT AND CONTROL DEVICE IDENTIFICATION

The list of emissions units for this facility is large. A complete listing of the significant emissions units can be found in Section II of the Title V permit. A complete listing of the insignificant units can be found in Section VII of the Title V permit.

EMISSIONS INVENTORY

2006 actual emissions for the facility are summarized in the following table.

| Pollutant Emission in Tons/Year | | | | | | |
|---------------------------------|-------------------|-----------------|-----------------|------|-----|------|
| PM ₁₀ | PM _{2.5} | SO ₂ | NO _x | CO | VOC | HF |
| 42.1 | 26.2 | 40.7 | 4.2 | 92.5 | 5.1 | 0.12 |

EMISSION UNIT APPLICABLE REQUIREMENTS - Fuel Burning Equipment - East Ridge dryer/cooler (Ref. E5.1 and E5.2)

Limitations

Emission control, processing, fuel, fuel throughput, emission limits, and visible emission limit conditions are carried forward from the June 4, 2007 SOP.

Monitoring

Conditions requiring monitoring devices and predictive emissions monitoring requirements have been carried forward from the June 4, 2007 SOP. A requirement to stack test the emissions from the control device stack once during the term of the Title V permit is included as a part of monitoring, and is being carried forward from the May 23, 2003 original Title V permit and the June 19, 2007 Title V permit modification.

This emissions source has the potential, before controls, to emit PM, PM-10, Sulfur dioxide (SO₂), and hydrogen fluoride (HF) in major source quantities. These pollutants are controlled by a combined scrubber and wet electrostatic precipitator and have emission limits in the permit. Therefore, this emissions source is subject to the Compliance Assurance Monitoring (CAM) requirements in 40 CFR Part 64. The permittee was required to submit a CAM Plan to meet those requirements. A condition is included in this section of the Title V permit that references the CAM Plan that is an attachment to the permit document (Attachment EWESP of permit).

Recordkeeping

Requirements are included for records for annual kyanite production, fuel consumption, monitoring, maintenance, testing, VEEs, performance evaluations, notifications, and fuel certifications. These conditions are carried forward from the June 4, 2007 SOP and the June 19, 2007 Title V permit modification. Also required are records for the CAM Plan as required by 40 CFR 64.9.

Testing

A testing requirement for this emissions source is included in the monitoring section of the permit. The Department and EPA have the authority to require testing not included in this permit if necessary to determine compliance with an emission limit or standard.

Reporting

The permittee shall submit written reports in accordance with General Condition requirements of the Title V permit.

Streamlined Requirements

Condition 27 of the June 4, 2007 permit has not been included in this Title V permit for this emissions source. Condition 27 required recording of monitoring data once per 8-hour shift, while the approved CAM Plan for this unit will require recording of monitoring data on an hourly basis. Conditions for periodic monitoring, from the May 23, 2003 original Title V permit and the June 19, 2007 Title V permit modification, that required visible emission observations, corrective action, and maintaining of observation records have been replaced by the CAM Plan requirements.

EMISSION UNIT APPLICABLE REQUIREMENTS - Fuel Burning Equipment - Gieseke kiln (Ref. G5)

Limitations

Emission control, processing, fuel, fuel throughput, emission limits, and visible emission limit conditions are carried forward from the June 4, 2007 SOP. Also carried forward from the June 4, 2007 SOP is a requirement for the permittee to submit stack parameters for the control unit prior to commencement of construction.

Monitoring

Conditions requiring monitoring devices and predictive emissions monitoring requirements have been carried forward from the June 4, 2007 SOP. A requirement to stack test the emissions control device once during the term of the Title V permit is included as a part of periodic monitoring, and is being carried forward from the May 23, 2003 original Title V permit and the June 19, 2007 Title V permit modification.

This emissions source has the potential, before controls, to emit PM, PM-10, Sulfur dioxide (SO₂), and hydrogen fluoride (HF) in major source quantities. Therefore, this emissions source is subject to the Compliance Assurance Monitoring (CAM) requirements in 40 CFR Part

64. The permittee is being required to submit a CAM Plan to meet those requirements prior to commencement of construction of the control device.

Recordkeeping

Requirements are included for records for annual mullite production, fuel consumption, monitoring, maintenance, testing, VEEs, performance evaluations, notifications, and fuel certifications. These conditions are carried forward from the June 4, 2007 SOP and the June 19, 2007 Title V permit modification. Also required are records for the CAM Plan as required by 40 CFR 64.9.

Testing

Because this emissions unit has not been constructed, included in the permit are conditions for initial performance testing. These conditions include stack tests for PM, SO₂, NO_x, and CO along with a visible emissions evaluation. Also, the results of the stack test are to be used to propose revised emission factors and process limits for the facility. These conditions are carried from the June 4, 2004 SOP and from the May 23, 2003 original Title V permit and the June 19, 2007 Title V permit modification.

A periodic testing requirement for this emissions source is included in the monitoring section of the permit. The Department and EPA have the authority to require testing not included in this permit if necessary to determine compliance with an emission limit or standard.

Reporting

The permittee shall submit written reports in accordance with General Condition requirements of the Title V permit.

Streamlined Requirements

Condition 27 of the June 4, 2007 permit has not been included in this Title V permit for this emissions source. Condition 27 required recording of monitoring data once per 8-hour shift, while it is anticipated that the approved CAM Plan for this unit will require recording of monitoring data on an hourly basis as is required by other similar emissions sources at this facility. Conditions for periodic monitoring, from the May 23, 2003 original Title V permit and the June 19, 2007 Title V permit modification, that required visible emission observations, corrective action, and maintaining of observation records have been replaced by the CAM Plan requirements.

EMISSION UNIT APPLICABLE REQUIREMENTS - Fuel Burning Equipment - Willis Mountain dryer/cooler (Ref. W4.1 and W4.2)

Limitations

Emission control, processing, fuel, fuel throughput, emission limits, and visible emission limit conditions are carried forward from the June 4, 2007 SOP.

Monitoring

Conditions requiring monitoring devices and predictive emissions monitoring requirements have been carried forward from the June 4, 2007 SOP. A requirement to stack test the emissions from the control device stack once during the term of the Title V permit is included as a part of periodic monitoring, and is being carried forward from the May 23, 2003 original Title V permit and the June 19, 2007 Title V permit modification.

This emissions source has the potential, before controls, to emit PM, PM-10, Sulfur dioxide (SO₂), and hydrogen fluoride (HF) in major source quantities. Therefore, this emissions source is subject to the Compliance Assurance Monitoring (CAM) requirements in 40 CFR Part 64. The permittee was required to submit a CAM Plan to meet those requirements. A condition is included in this section of the Title V permit that references the CAM Plan that is an attachment to the permit document (Attachment WWESP of permit).

Recordkeeping

Requirements are included for records for annual kyanite production, fuel consumption, monitoring, CAM, maintenance, testing, VEEs, performance evaluations, notifications, and fuel certifications. These conditions are carried forward from the June 4, 2007 SOP and the June 19, 2007 Title V permit modification. Also required are records for the CAM Plan as required by 40 CFR 64.9.

Testing

A testing requirement for this emissions source is included in the monitoring section of the permit. The Department and EPA have the authority to require testing not included in this permit if necessary to determine compliance with an emission limit or standard.

Reporting

The permittee shall submit written reports in accordance with General Condition requirements of the Title V permit.

Streamlined Requirements

Condition 27 of the June 4, 2007 permit has not been included in this Title V permit for this emissions source. Condition 27 required recording of monitoring data once per 8-hour shift, while the approved CAM Plan for this unit will require recording of monitoring data on an hourly basis. Conditions for periodic monitoring, from the May 23, 2003 original Title V permit and the June 19, 2007 Title V permit modification, that required visible emission observations, corrective action, and maintaining of observation records have been replaced by the CAM Plan requirements.

EMISSION UNIT APPLICABLE REQUIREMENTS - Fuel Burning Equipment - Willis Mountain sand dryer (Ref. W6)

Limitations

Emission control, processing, fuel, fuel throughput, emission limits, and visible emission limit conditions are carried forward from the June 4, 2007 SOP.

Monitoring

Conditions for periodic monitoring that require visible emission observations, corrective action, and maintaining of observation records have been carried forward from the May 23, 2003 original Title V permit and the June 19, 2007 Title V permit modification. A requirement to stack test the emissions from the control device stack once during the term of the Title V permit is included as a part of periodic monitoring, and is also carried forward from the May 23, 2003 original Title V permit and the June 19, 2007 Title V permit modification.

Recordkeeping

Requirements are included for records for annual sand production, fuel consumption, maintenance, testing, VEEs, monitoring, notifications, and fuel certifications.

Testing

A testing requirement for this emissions source is included in the monitoring section of the permit. The Department and EPA have the authority to require testing not included in this permit if necessary to determine compliance with an emission limit or standard.

Reporting

The permittee shall submit written reports in accordance with General Condition requirements of the Title V permit.

Streamlined Requirements

None

EMISSION UNIT APPLICABLE REQUIREMENTS - Fuel Burning Equipment - IC-powered dredge (Ref. Dredge)**Limitations**

Operating hours, fuel, emission limits, and visible emission limit conditions are carried forward from the June 4, 2007 SOP.

Monitoring

Conditions for periodic monitoring that require visible emission observations, corrective action, and maintaining of observation records have been carried forward from the May 23, 2003 original Title V permit and the June 19, 2007 Title V permit modification.

Recordkeeping

Requirements are included for records for operating hours, maintenance, VEEs, monitoring, and fuel certifications.

Testing

The permit does not require a source test for this emissions source. The Department and EPA have the authority to require testing not included in this permit if necessary to determine compliance with an emission limit or standard.

Reporting

The permittee shall submit written reports in accordance with General Condition requirements of the Title V permit.

Streamlined Requirements

None

EMISSION UNIT APPLICABLE REQUIREMENTS - Stone Processing - East Ridge Plant

Limitations

Emission control, throughput, emission limits, and visible emission limit conditions are carried forward from the June 4, 2007 SOP.

Monitoring

A condition requiring a monitoring device on the fabric filter (Ref. E5cBH) in this section of the facility is carried forward from the June 4, 2007 SOP. Conditions for periodic monitoring for the material handling equipment and buildings in this section of the facility require visible emission observations, corrective action, and maintaining of observation records. These conditions have been carried forward from the May 23, 2003 original Title V permit and the June 19, 2007 Title V permit modification.

The fabric filter (Ref. E5cBH) in this section of the facility has the potential, before controls, to emit PM and PM-10 in major source quantities. Therefore, this emissions source is subject to the Compliance Assurance Monitoring (CAM) requirements in 40 CFR Part 64. The permittee was required to submit a CAM Plan to meet those requirements. A condition is included in this section of the Title V permit that references the CAM Plan that is an attachment to the permit document (Attachment E5cBH of permit).

Recordkeeping

Requirements are included for records for raw ore processed, maintenance, monitoring, and VEEs. These conditions are carried forward from the June 4, 2007 SOP and the June 19, 2007 Title V permit modification. Also required are records for the CAM Plan as required by 40 CFR 64.9.

Testing

The permit does not require source tests for this section of the facility. The Department and EPA have the authority to require testing not included in this permit if necessary to determine compliance with an emission limit or standard.

Reporting

The permittee shall submit written reports in accordance with General Condition requirements of the Title V permit.

Streamlined Requirements

Because the fabric filter (Ref. E5cBH) has CAM Plan requirements it has been removed from the list of material handling units and buildings in the Observations and Observations Records sections.

EMISSION UNIT APPLICABLE REQUIREMENTS - Stone Processing - Gieseke Plant

Limitations

Emission control, throughput, emission limit, visible emission limit, and NSPS Kb conditions are carried forward from the June 4, 2007 SOP.

Monitoring

A condition requiring monitoring devices on the fabric filters (Ref. G2BH, G3BH, G8B1, G8B2, GBDC1, GBDC2, GBDC3, GBDC4, GSDC1) in this section of the facility is carried forward from the June 4, 2007 SOP. Conditions for periodic monitoring for the material handling equipment and buildings in this section of the facility require visible emission observations, corrective action, and maintaining of observation records. These conditions have been carried forward from the May 23, 2003 original Title V permit and the June 19, 2007 Title V permit modification.

The fabric filters Ref. G2BH, G3BH, G8B1, G8B2, GBDC1, GBDC2, GBDC3, and GBDC4 in this section of the facility have the potential, before controls, to emit PM and PM-10 in major source quantities. Therefore, these emissions sources are subject to the Compliance Assurance Monitoring (CAM) requirements in 40 CFR Part 64. The permittee was required to submit CAM Plans to meet those requirements. Conditions are included in this section of the Title V permit that references the CAM Plans that are attachments to the permit document (Attachments G2BH, G3BH, G8B1-2, and GBDC1-4 of permit).

The fabric filter Ref. GSDC1 in this section of the facility, when constructed, will have the potential, before controls, to emit PM and PM-10 in major source quantities. Therefore, this emissions source is subject to the Compliance Assurance Monitoring (CAM) requirements in 40 CFR Part 64. The permittee is being required to submit a CAM Plan to meet those requirements prior to commencement of construction of the control device.

Recordkeeping

Requirements are included for records for mullite and kyanite throughput, maintenance, stack test, VEEs, performance evaluations, notifications, and tank information. These conditions are carried forward from the June 4, 2007 SOP and the June 19, 2007 Title V permit modification. Also required are records for the CAM Plans as required by 40 CFR 64.9.

Testing

A fabric filter (Ref. GSDC1), subject to NSPS OOO, has not been installed. The Gieseke Screening Building, which will enclose NSPS OOO subject equipment, is not operational.

Because they are subject to NSPS OOO they are subject to testing. Conditions are included for initial performance testing that includes a stack test for the fabric filter and VEEs for the fabric filter and building.

Reporting

The permittee shall submit written reports in accordance with General Condition requirements of the Title V permit. The permittee is also required to make the required notifications for NSPS OOO equipment for construction, start-up, and testing.

Streamlined Requirements

Because the fabric filters (Ref. G2BH, G3BH, G8B1, G8B2, GBDC1, GBDC2, GBDC3, GBDC4) have CAM Plan requirements, reference to these units have been removed from the list of material handling units and buildings in the Observations and Observations Records sections. Stack test and VEE requirements for the fabric filters Ref. GBDC1, GBDC2, GBDC3, and GBDC4 have been accomplished; therefore, those conditions have not been carried forward from the June 4, 2007 SOP.

EMISSION UNIT APPLICABLE REQUIREMENTS - Stone Processing - Willis Mountain Plant

Limitations

Emission control, throughput, emission limit, and visible emission limit conditions are carried forward from the June 4, 2007 SOP.

Monitoring

Conditions for periodic monitoring for the material handling equipment and buildings in this section of the facility require visible emission observations, corrective action, and maintaining of observation records. These conditions have been carried forward from the May 23, 2003 original Title V permit and the June 19, 2007 Title V permit modification.

The fabric filter Ref. DC1 in this section of the facility has the potential, before controls, to emit PM and PM-10 in major source quantities. Therefore, this emissions source is subject to the Compliance Assurance Monitoring (CAM) requirements in 40 CFR Part 64. The permittee was required to submit a CAM Plan to meet those requirements. Conditions are included in this section of the Title V permit that references the CAM Plan that is an attachment to the permit document (Attachment DC1 of permit).

Recordkeeping

Requirements are included for raw ore and kyanite throughput, maintenance, VEEs, and monitoring. These conditions are carried forward from the June 4, 2007 SOP and the June 19, 2007 Title V permit modification. Also required are records for the CAM Plans as required by 40 CFR 64.9.

Testing

No source test requirements are being carried forward from the June 4, 2007 SOP. The Department and EPA have the authority to require testing not included in this permit if necessary to determine compliance with an emission limit or standard.

Reporting

The permittee shall submit written reports in accordance with General Condition requirements of the Title V permit.

Streamlined Requirements

Because the fabric filter Ref. DC1 has CAM Plan requirements, reference to this unit has been removed from the list of material handling units and buildings in the Observations and Observations Records sections. Stack test, VEE, and notification requirements for the fabric filter Ref. DC1 have been accomplished; therefore, those conditions have not been carried forward from the June 4, 2007 SOP.

EMISSION UNIT APPLICABLE REQUIREMENTS - Facility Wide Conditions

Limitations

Emission limit, fuel, fuel certification, kyanite sampling, NSPS Subpart OOO, maintenance/operating, visible emission limit, and ambient air quality standard conditions are carried forward from the June 4, 2007 SOP.

Recordkeeping

Requirements are included for calculation of SO₂, CO, HF, and other HAPs, maintenance, and fuel certifications. These conditions are carried forward from the June 4, 2007 SOP and the June 19, 2007 Title V permit modification.

Reporting

The permittee shall submit written reports in accordance with General Condition requirements of the Title V permit.

Streamlined Requirements

None

COMPLIANCE ASSURANCE MONITORING (CAM) PROVISIONS

A series of conditions has been included in the permit that outlines the general requirements of CAM. These include CAM Plan content, monitoring, corrective action, response to an excursion or exceedance evaluation, CAM Plan revision, Quality Improvement Plan (QIP) development, recordkeeping, and reporting requirements. These conditions apply to all of the CAM Plans associated with this permit including Attachments EWESP, WWESP, E5cBH, G2BH, G3BH, G8B1-2, GBDC1-4, and DC1 of the permit, and other CAM Plans to be submitted for units not yet constructed.

GENERAL CONDITIONS

The permit contains general conditions required by 40 CFR Part 70 and 9 VAC 5-80-110 that apply to all Federal-operating permitted sources. These include requirements for submitting semi-annual monitoring reports and an annual compliance certification report. The permit also requires notification of deviations from permit requirements or any excess emissions.

FUTURE APPLICABLE REQUIREMENTS

None

INAPPLICABLE REQUIREMENTS

The Title V permit lists the following regulations as not being applicable:

- 40 CFR 60 Subpart UUU for Calciners and Dryers in the Mineral Industries is not applicable to the East Ridge dryer, Willis Mountain dryer, and Gieseke kiln
- 40 CFR 60 Subpart Y for Coal Preparation Plants is not applicable to the Gieseke coal mill and coal belt conveyor
- 40 CFR 60 Subpart OOO for Nonmetallic Mineral Processing Plants is not applicable to the Mullite-only processing equipment at the facility

The startup, shut down, and malfunction opacity exclusion listed in 9 VAC 5-40-20 A 3 cannot be included in any Title V permit. This portion of the regulation is not part of the federally approved state implementation plan. The opacity standard applies to existing sources at all times including startup, shutdown, and malfunction. Opacity exceedances during malfunction can be affirmatively defended provided all requirements of the affirmative defense section of this permit are met. Opacity exceedances during startup and shut down will be reviewed with enforcement discretion using the requirements of 9 VAC 5-40-20 E, which state that "At all times, including periods of startup, shutdown, soot blowing and malfunction, owners shall, to the extent practicable, maintain and operate any affected facility including associated air pollution control equipment in a manner consistent with air pollution control practices for minimizing emissions."

COMPLIANCE PLAN

None

INSIGNIFICANT EMISSION UNITS

The list of insignificant emissions units for this facility is large. A complete listing of the insignificant units can be found in Section VII of the Title V permit.

The insignificant emission units are presumed to be in compliance with all requirements of the Clean Air Act as may apply. Based on this presumption, no monitoring, recordkeeping or reporting shall be required for these emission units in accordance with 9 VAC 5-80-110.

CONFIDENTIAL INFORMATION

There is not a confidential information request for this facility.

PUBLIC PARTICIPATION

The proposed permit was placed on public notice in the Farmville Herald from April 4, 2008 to May 4, 2008. There were no comments received from the public. EPA's review period ended on May 19, 2008 with no comments being submitted.